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Title: **New species of *Homidia* from** Japan **(Collembola, Entomobryidae)**

Short title: New *Homidia* from Japan

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Abstract

Three species of *Homidia*, (*H. rosannae* n. sp., *H. sotoi* n. sp. and *H. yoshiii* n. sp.) found among misidentified specimens of the Yoshii's Collection at "Muséum d'histoire naturelle de la Ville de Genève" (MHNG), are described. The similar colour pattern of many species of Entomobryini makes it difficult to identify some specimens, but the use of macrochaetotaxy (Jordana & Baquero, 2005) allows differentiate the species and, for this paper, the description of these three new ones. A comparative chaetotaxy of *Homidia* Japanese species and a key is given.

Keywords

colour pattern, macrochaetotaxy, descriptions.

1. Introduction

While the collection of Riozo Yoshii, deposited in the "Muséum d'histoire naturelle de la Ville de Genève" (MHNG), was been studied, among the material correctly classified of *Entomobrya*, *Homidia*, *Sinella* and other genera, some specimens have appeared to be distinctly different from the species labelled in the tubes. These specimens have been studied and some of them are described as new species.

The set of characters consider morphological information and dorsal macrochaetotaxy, and follow in part the previous paper of Christiansen (1958), Christiansen & Bellinger (1980) and Jordana & Baquero (2005), although Szeptycki (1979) is the basis for the chaetotaxy.

Abbreviations: Abd = abdominal segment; Ant = antennal segment; Fur = manubrium + dens length; Man = manubrium; MHNG = Muséum d'histoire naturelle de la Ville de Genève; Th = thoracic segment

2. Material and Methods

The species described were found among 130 samples from Yoshii's collection. Between them there were some type specimens from species described by Yoshii and collected by him and other entomologists (Janetschek, Ashraf, Ueno, Yasuda or Tokunaga). The separation of the specimens not belonging to the species mentioned at labels were made using colour pattern, but the confirmation of the identity requires the study of the dorsal macrochaetotaxy. The specimens were mounted in Hoyer medium, sometimes cleared with Nesbitt solution. Observation of the slides was done under an Olympus BX51-TF microscope with a multi viewing system and phase contrast, and a Zeiss Axio Imager A1 with differential interference

contrast (DIC). For the measurements a UDA drawing attachment UIS (Universal Infinity System) and a scale calibrated with a slide of Graticules Ltd. (1 mm/0.01 div) were used.

3. Results

***Homidia rosannae* n. sp.** (Figs. 1A-B, 2A-D, 5A-D, Tab. 1)

Type locality. Japan, (Gumma): Oze.

Type material. Holotype, specimen on slide labelled as "Japan (Gumma): Oze leg. R. Yoshii"; two paratypes in ethyl-alcohol. They were in the same tube with 2 specimens of "*Sinella* (*Sinella*) *umesaoi"*. Deposited in MHNG**.**

Description.

Body length up to 1.9 mm excluding antennae. Ground colour pale yellow; pattern as figures 1A (body) and 1B (head and antennae).

Head. Eight eyes, GH smaller than EF. Antennae length 1.05 μm, 2.39 times the length of the head; relative length of antennal segments 1.00/1.50/1.22/2.11. Antennal segment IV two lobe apical vesicle (Fig. 5A). Four conical labral papillae, with a projection seta-like on the two central ones (Fig. 5B). Labial base chaetae formula: -**MRell**, MR ciliated (R half in size than M) and **ell** smooth.

Body. Length ratio abdominal segments IV/ III: 5.8. Claw with four internal teeth: first pair at 45% of distance from base of claw, and two odd teeth, first at 70% of distance from base and the most distal one minute; dorsal tooth not basal (before of the level of paired teeth), and lateral ones not visible. Empodium spike-like, with smooth external edge on leg III (Fig. 5C). Length of manubrium and dens 1020 μm. Manubrial plate with 11 chaetae and 3 pseudopores. Manubrium with 22-23 spines, in two rows in the middle. Mucro with basal spine, subapical teeth clearly bigger than terminal one (Fig. 5D).

Chaetotaxy. Simplified macrochaetae formula: 3-1-0-3-3/4-5/2-4/1-2-1/0-7(8)-2-3-3. Head chaetotaxy as figure 2A, in H4 area is an asymmetry in chaetae pattern. Thorax chaetotaxy: T1 area on thoracic segment II with 4 macrochaetae (m_1, m_2, m_{2i} and m_{2i2} present); T2 area on thoracic segment II with five macrochaetae present (a_5, m_4, m_{4i}, m_{4p} and m_5) (Fig. 2B). Abdominal chaetotaxy (Fig. 2C-D): A1 area on abdominal segment II with two macrochaetae and A2 area on abdominal segment II with four macrochaetae. Abd III with one macroseta on area A3 and A5, two macrochaetae on A4 area.

Biology. Unknown.

Discussion. The specimens were found among specimens of *Sinella umesaoi*, very similar in colour and habitus, but differentiable by eyes size (small and triangular in *Sinella* and bigger in *Homidia*), and the carefully observation of colouration.

There are only four Palaearctic *Homidia* with 1-2-1 dorsal macrochaetae on abdominal tergite III (*H. munda* Yoshii, 1956, *H. rosannae* n. sp., *H. sauteri* Börner, 1909, and *H. socia* Denis, 1929), only two have 2-4 dorsal macrochaetae on abdominal tergite II (*H. munda* and *H. rosannae* n. sp.), but only the new species has 4-5 dorsal macrochaetae on thoracic tergite II. *H. rosannae* n. sp. share with *H. sinensis* Denis, 1929 the dorsal macrochaetaxy of thoracic tergite II and abdominal tergite II (Table 2)., but *H. sinensis* has blue pigment on lateral thoracic tergite II, dorsal thoracic tergite III and abdominal tergites I and II, a transversal stripe on thoracic tergite III and lateral abdominal tergite IV.

Etymology. The new species is dedicated to Rosanna Giordano, a prestigious researcher in insect's molecular biology.

***Homidia sotoi* n. sp.** (Figs. 1C-D, 3A-D, 5E-G, Tab. 1)

Type locality. Japan, (Kumamoto): Amakusa, Tororo.

Type material. Holotype, specimen on slide labelled as "Japan (Kumamoto): Amakusa, Tororo 7.V.1970 leg. R. Yoshii"; paratypes: three specimens in ethyl alcohol (two without furcula). Deposited in MHNG.

Description.

Body length up to 2.78 mm excluding antennae. Ground colour pale yellow; pattern as figures 1C (body) and 1D (head and antennae).

Head. Eight eyes, GH smaller than EF. Antennae length 2.0 mm, 3.13 times the length of the head; relative length of antennal segments 1.00/1.36/1.28/1.92. Antennal segment IV with two lobe apical vesicle. Without visible labral papillae. Labial base setal formula: ???ell (MMR not visibles, **ell** are smooth).

Body. Length ratio abdominal segments IV/III: 5.65. Claw with four internal teeth: first pair at 40% of distance from base of claw, and two odd teeth, first at 70% of distance from base and the most distal one minute; dorsal tooth basal and lateral ones before paired teeth. Empodium spike-like, with smooth external edge on leg III (Fig. 5E). Length of manubrium and dens 1.66 mm. Manubrial plate with 10 chaetae and 3 pseudopores. 28-30 spines on dens as in figure 5F. Mucro with basal spine, subapical teeth clearly bigger than terminal one (Fig. 5G).

Chaetotaxy. Simplified macrochaetae formula: 3-1-0-3-3/3-5/2-6/0-1-1/1-15(18)-2-2(3)-4(5). Head chaetotaxy as in figure 3A. Thorax chaetotaxy: T1 area on thoracic segment II with three macrochaetae (m_1, m_2 and m_{2i} present); T2 area on thoracic segment II with five macrochaetae present (a_5, m_4, m_{4p}, m_{4pi} and m_5) (Fig. 3B). Abdomen chaetotaxy (Figs. 3C-D): A1 area on abdominal segment II with two macrochaetae and A2 area on abdominal segment II with six macrochaetae. Abd III with one macroseta on areas A3-A5.

Biology. Captured together with *Entomobrya thalassicola* Yosii, 1965 in a marine environment.

Discussion. The colour pattern of the new species is not characteristic. Dorsal macrochaetotaxy must be necessary for its identification. *H. sotoi* n. sp. is the only Palaearctic species with 6 chaetae on A2 area in abdominal tergite II (there are only two species with five: *H. sauteri* from USA, and *H. socia*). The formula 0-1-1 is frequent on abdominal tergite III (26 palaearctic species), but only two species –in addition of the new species– (*H. tiantaiensis* Chen & Lin, 1998 and *H. ziguiensis* Jia *et al*., 2003) have 1 seta on A6 area on abdominal tergite IV. *H. sotoi* n. sp. and *H. rosannae* n. sp. are the only species with three macrochaetae (or mesochaetae with a reasonable size) on H5 area (head) (Table 2).

Etymology. The new species is dedicated to Felipe N. Soto-Adames, American collembologist.

***Homidia yoshiii* n. sp.** (Figs. 1E, 4A-D, 5H)

Type locality. JAPAN, Miyako Is.

Type material. Holotype, specimen on tube. "Japan: Miyako Is. 24.V.1959 leg. Nishihita, 39 specimens". Deposited in MHNG.

Other material. "Japan: Miyako Is. 24.V.1960 leg. Nishihita, 56 specimens"

Description.

Body length up to 2.63 mm excluding antennae. Ground colour pale yellow; pattern as figure 1E.

Head. Eight eyes, GH smaller than EF. Antennae length 1.44 μm, 2.88 times the length of the head; relative length of antennal segments 1.00/1.40/1.28/2.08. Antennal segment IV with 2 lobe apical vesicle. 4 smooth labral papillae. Labial base setal formula: **-MRell**, **ell** smooth.

Body. Length ratio abdominal segment IV/III: 5.0. Claw with 3 internal teeth: first pair at 55% of distance from base of claw, and one odd tooth at 70% of distance from base; dorsal tooth basal, and lateral ones before level of paired teeth. Empodium spike-like, with smooth external edge on leg III (Fig. 5H). Length of manubrium and dens 1.39 μm. Manubrial plate with 11 chaetae and 3 pseudopores. Mucro with basal spine, subapical teeth clearly bigger than terminal one.

Chaetotaxy. Simplified macrochaetae formula: 3-1-0-3-1b/5-5/2-4/1-1-1/0-13-2-3-5.

Head chaetotaxy as figure 4A. Thorax chaetotaxy: T1 area on thoracic segment II with 5 macrochaetae (m1, m2i, m2i2 and two additional chaetae present); T2 area on thoracic segment II with 5 macrochaetae present (a5, m4, m4i, m4p and m5) (Fig. 4B). Abdomen chaetotaxy (Figs. 4C-D): A1 area on abdominal segment II with 2 macrochaetae and A2 area on abdominal segment II with 4 macrochaetae. Abd III with 1 macroseta on areas A3-A5.

Biology. Unknown.

Discussion. The specimens were identified by Yoshii as *H. munda*, but some differences in colour pattern can be seen: the head is completely dark in *H. yoshiii* n. sp.; the dorsal dark patch on thoracic tergite II reaches the anterior side in *H. munda*, while is only posterior in *H. yoshiii* n. sp.; the dark patch is anterior in *H. yoshiii* n. sp. and posterior in *H. munda*, which also has a transversal stripe on its posterior side in Abd I and III; *H. munda* also have some patches on posterior side in abdominal tergites IV and V. *H. yoshiii* n. sp. is close to *H. chosonica* Szeptycki, 1973 due to its 5 chaetae on T1 area (thoracic tergite II), but differs in the abdominal II and IV chaetotaxy. It shares the formula on abdominal tergite III only with *H. sauteri* from USA and *H. nigra* Lee & Lee, 1981, but it distinguished by multiple differences in its reduced dorsal macrochaetotaxy formula (Table 2). The identity of the

specimens studied as new species is consistent with the fact of having been found on an island far south of where the species *H. munda* was found and described.

Etymology. The new species is dedicated to the memory of Riozo Yoshii, the eminent Japanese specialist on Collembola.

A general discussion about Japanese *Homidia*

The genus *Homidia* was established by Börner (1906) as a subgenus of the genus *Entomobrya* Rondani, 1861. Denis (1929) raised it to the generic level. This genus is the only among Entomobryini with dental spines on its inner edge, in adults; its chaetotaxy shows a peculiar distribution of macrochaetae on Abd. IV with a transversal anterior row (Area A7). 11 species of the genus have been found in Japan, these are listed below.

H. amethystinoides **n. nom**. = *Homidia amethystina* Yosii, 1942 nec Börner, 1909.

H. chrysothrix Yosii, 1942

H. fujiyamai Uchida, 1954

H. munda Yosii, 1956

H. nigrocephala Uchida, 1943

H. rossannae **n. sp.**

H. sauteri (Börner, 1909)

H. socia Denis, 1929

H. sotoi **n. sp.**

H. subcingula Denis, 1948

H. yoshiii **n. sp.**

H. amethystinoides was described by Yosii in 1942 as *H. amethystina* Börner, 1909, but as this species is an *Entomobrya* without dental spines, we have changed the name by

homonymy. The description is very poor and only refers to its characteristic colour and some morphological characters. *H. fujiyamai* and *H. nigrocephala* are species described by Uchida and never found again, although its characteristic colour permits its identification. Specimens of these three species have not been found in the revised collection of Yoshii and only the original descriptions remain. We studied the types or some material of listed species and we can give its chaetotaxy (Table 3). A comparison among the species with known chaetotaxy is given in Table 4. The comparison shows many chaetotaxic differences among the species.

Key of Japanese species of *Homidia*

1 entirely white o yellowish from Th II to Abd III entirely white T2 area on Th II with 5 macrochaetae ..... ***H. rosannae* n. sp.**

- with some colour patches or dark pigment on these body segments..... 2

2 Th III to Abd IV totally dark, with or without posterior darker band 3

- Th III to Abd IV not totally dark, but with some coloured pattern or without pigment in some segment 4

3 Th II entirely pigmented..... *H. amethystinoides*

- Th II with an anterior-lateral band and a posterior transversal stripe, head dark coloured ..... *H. nigrocephala*

4 Abd I without dark pigment, only ground colour..... 5

- Abd I with dark pigment 8

5 T1 and T2 on Th 2 with 4-4 macrochaetae respectively ..... *H. sauteri*

- T1 and T2 on Th 2 without such formula..... 6

6 T1 and T2 on Th 2 with 5-5 macrochaetae respectively ..... ***H. yoshiii* n. sp.**

- T1 and T2 on Th 2 without such formula..... 7

7 Abd III with 0-2-2 macrochaetae on A2-A3 areas ..... *H. chrysothrix*

- Abd III with 0-1-1 macrochaetae on A2-A3 areas ..... *H. subcingula*

8 Abd I with lateral bands 9

- Abd I with posterior transversal stripe ..... *H. munda*

9 Abd III completely dark and lateral darker bands ..... *H. fujiyamai*

- Abd III only with lateral bands..... 10

10 A4 in Abd III with 3 macrochaetae ..... *H. socia*

- A4 in Abd III with macrochaetae ..... ***H. sotoi* n. sp.**

Acknowledgements

We wish express our gratitude to the Muséum d'histoire naturelle de la Ville de Genève" (MHNG) by the loan of Yoshii's collection.

5. **References**

Christiansen, K. (1958): The Nearctic members of the genus *Entomobrya* (Collembola). – Bulletin of the Museum of Comparative Zoology **118 (7)**: 1 – 545.

Christiansen, K. & P. Bellinger (1980): Part 3. Family Entomobryidae. – The Collembola of North America North of the Rio Grande, Grinnell College, Iowa, December, **3**: 785 – 1042.

Jordana, R. & Baquero, E. (2005): A proposal of characters for taxonomic identification of *Entomobrya* species (Collembola, Entomobryomorpha), with description of a new species. – Abhandlungen und Berichte des Naturkundemuseums, Görlitz **76 (2)**: 117 – 134.

Szeptycki, A. 1979. Chaetotaxy of the Entomobryidae and its phylogenetical significance, Morpho-systematic studies on Collembola IV, Kraków, pp. 1 – 218.

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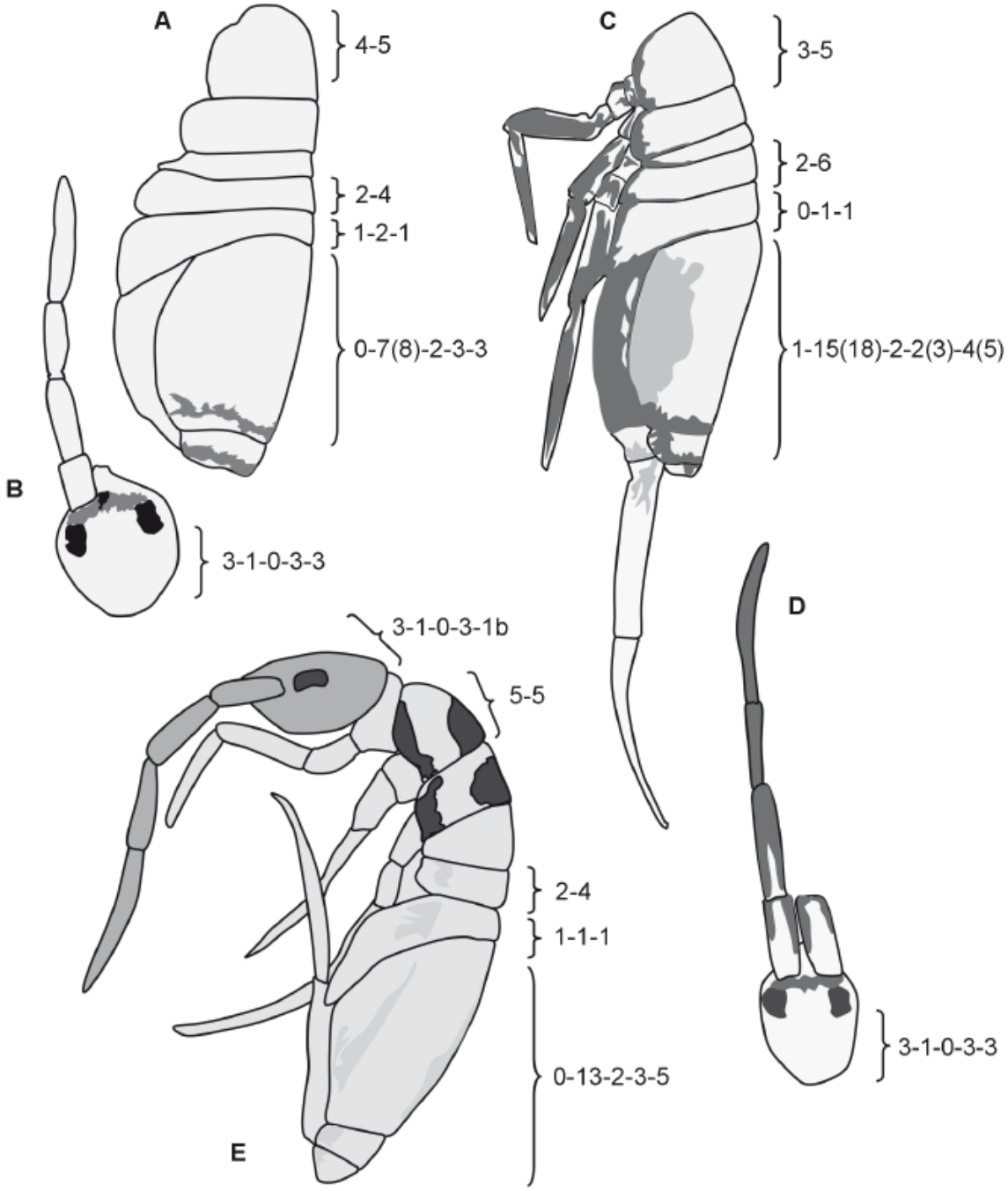

Fig. 1 *Homidia rosannae* n. sp., A: body. B: head and Ant, *Homidia sotoi* n. sp.; C: body and furcula. D: head and Ant, *Homidia yoshiii* n. sp.; E: lateral habitus.

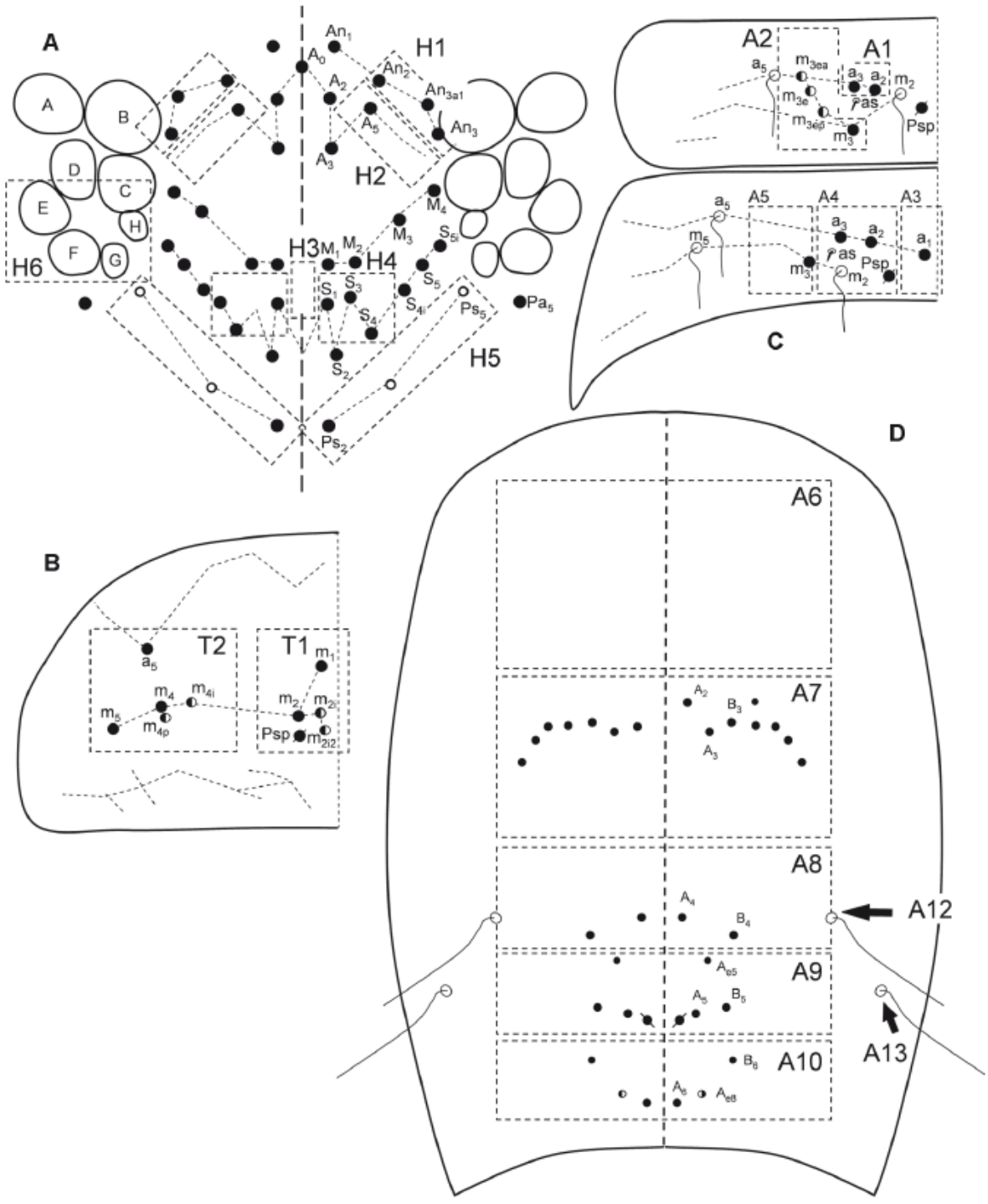

Fig. 2 *Homidia rosannae* n. sp. macrochaetotaxy. A: head; B: Th II; C: Abd II-III; D: Abd IV.

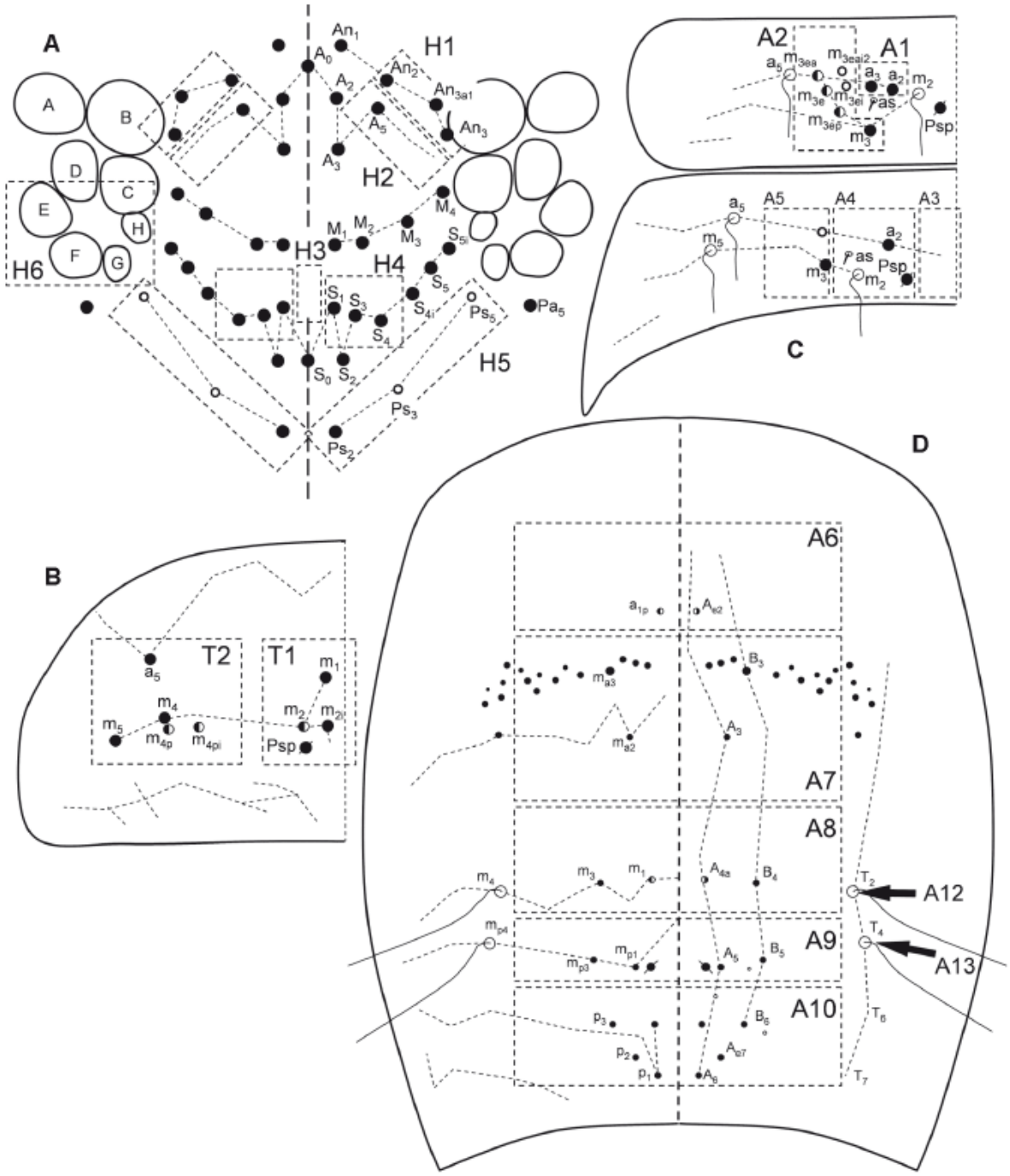

Fig. 3 *Homidia sotoi* n. sp. macrochaetotaxy. A: head; B: Th II; C: Abd II-III; D: Abd IV.

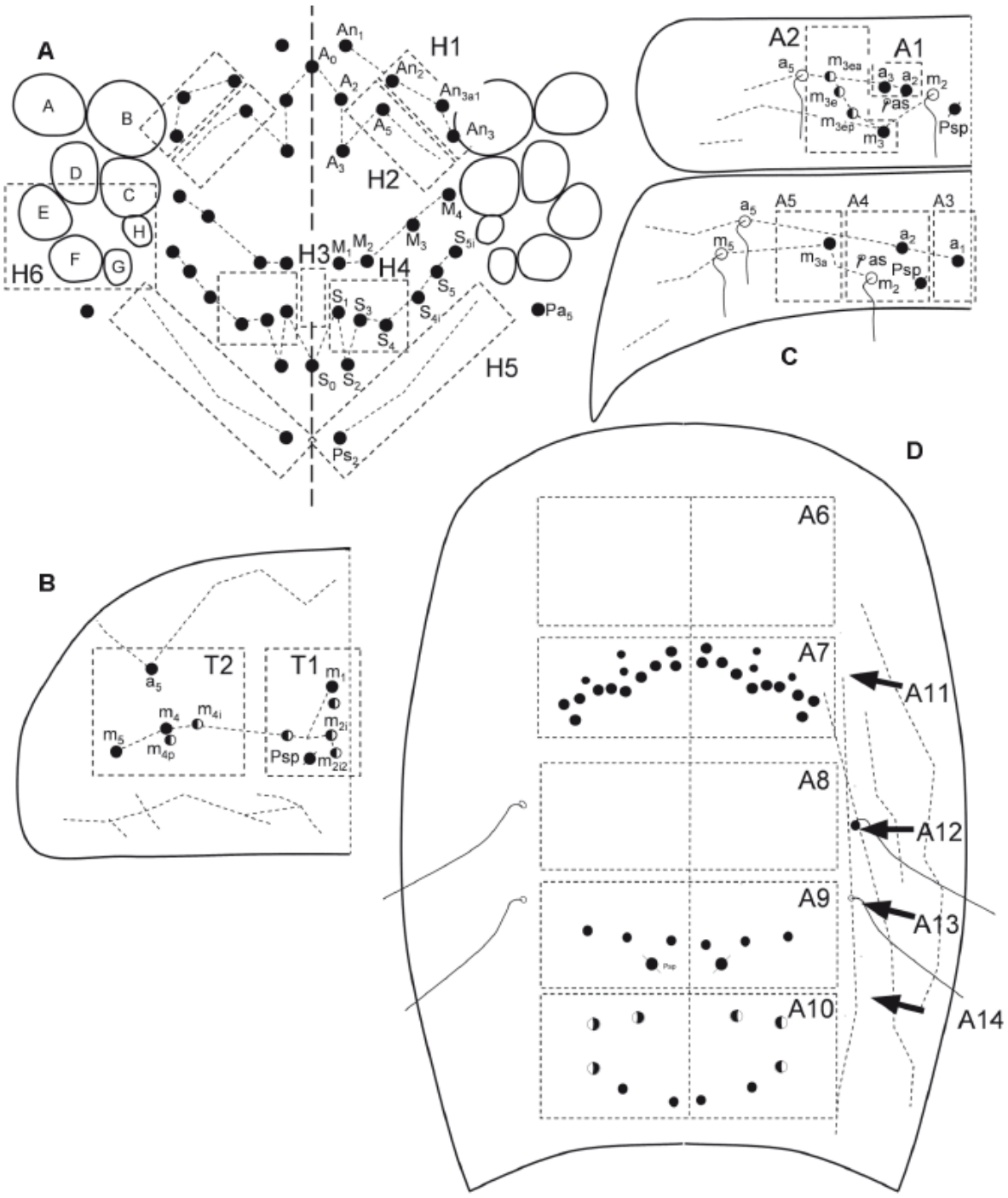

Fig. 4 *Homidia yoshiii* n. sp. macrochaetotaxy. A: head; B: Th II; C: Abd II-III; D: Abd IV.

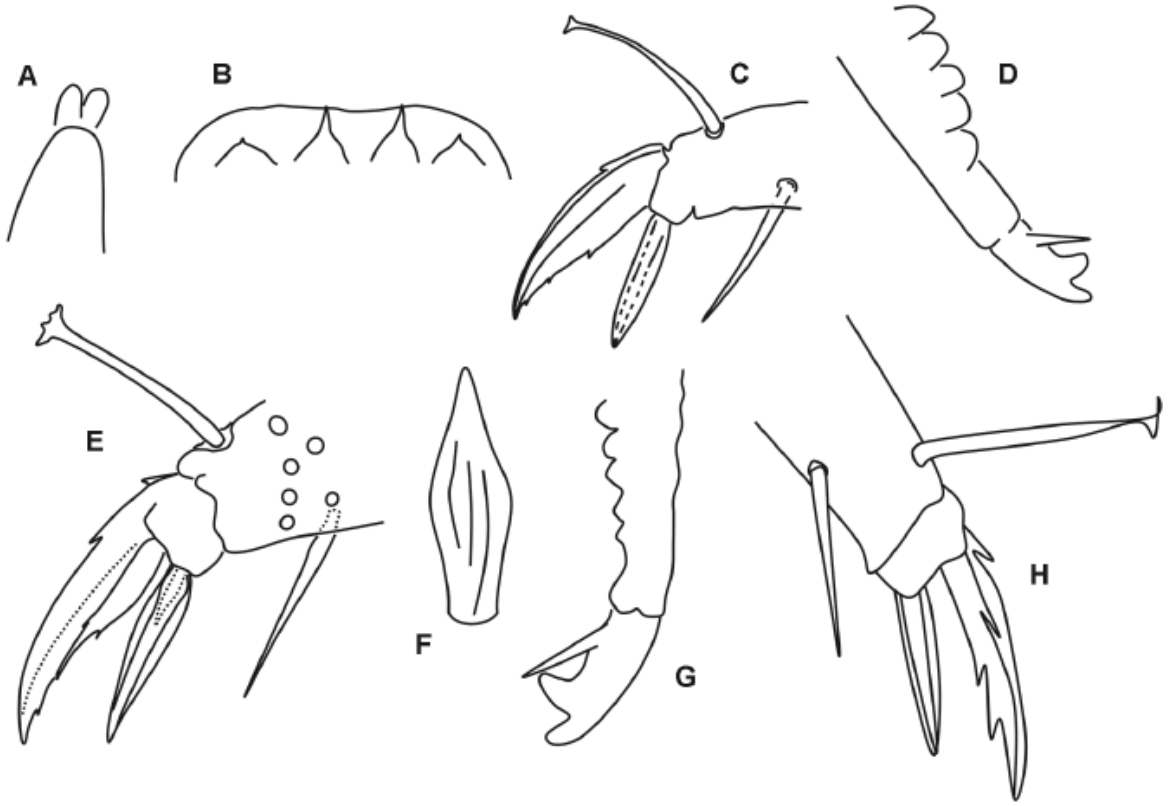

Fig. 5 *Homidia rosannae* n. sp.; A: antennal vesicle; B: labral papillae; C: claw and empodium; D: end of dens and mucro.
Homidia sotoi n. sp.; E: claw and empodium; F; one of the dental spines; G: end of dens and mucro.
Homidia yoshiii n. sp.; H: claw and empodium.

TABLE 1. Measurements of the new species (Holotypes), in micrometers.

	H. rosannae n. sp.	*H. sotoi* n. sp.	*H. yoshiii* n. sp.
Antennal I	180	360	250
Antennal II	270	490	350
Antennal III	220	460	320
Antennal V	380	690	520
Antenna	1050	2000	1440
Head	440	640	500
Antenna/head ratio	2,39	3,13	2,88
Thorax II	320	380	350
Thorax III	150	170	240
Abdominal I	70	110	130
Abdominal II	100	160	150
Abdominal III	100	170	170
Abdominal IV	580	960	850
Abdominal IV/III ratio	5,80	5,65	5,00
Abdominal V	90	130	150
Abdominal VI	70	60	90
Body	1920	2780	2630
Manubrium	480	760	650
Dens	540	900	740
Claw	40	68	52
Empodium	30	50	30
Tenent hair	44	64	40

TABLE 2. Comparative set of characteristics for the new and related species.
Abbreviations: Ant, antennae length; Fur, manubrium + dens length; Man. smooth chaetae, manubrium smooth chaetae; differences among species comparison, in bold.

Character	Place	Description	*H. rosannae* n. sp.	*H. sinensis*	*H. sotoi* n. sp.	*H. yoshiii* n. sp.	*H. munda*	*H. nigra*	*H. chosonica*
Ch1	H1	sd'4-sd'4' (An2-An3)	3	3	3	3	3	3	3
Ch2	H2	sd4-sd'3a (A5-A7)	1	1	1	1	1	1	1
Ch3	H3	d'0 (S'0)	0	0	0	0	0	0	0
Ch4	H4	d1-sd1-sd'1 (S1-S3-S4)	3	3	3	3	3	3	3
Ch5	H5	v1-v3-v4 (Ps2-Ps3-Ps5)	3	**2**	3	1b	**2**	**2**	**2**
Ch6	Labral papilla	without (0), simple and smooth papilla (1), wrinkled or with some projections (2), a projection chaetae like (3)	**3**	**1**	0	1	**0**	**0**	**0**
Ch7	eyes G&H size	= E&F (1), <E&F (2)	2	2	2	2	2	2	2
Ch8	Antennal vesicle	no bulb (0), lobule simple (1), bilobed (2), trilobed (3)	2		2	2	2	2	2
Ch9		> or = 3 (1), > or = 2 < 3 (2), < 2 (3)	2	2	1	2	2	2	1
Ant	Antennae length		1050	**1950**	2000	1440	1698	**838**	1244
Ch10	Thoracic tergite II mane MS	with Ms type 1 (1), without Ms or type 2 (2)	1	1	1	1	1	1	1
Ch11	T1	m1-m2i2; >4 (5)	4	4	3	5	**4**	**3**	5
Ch12	T2	a5-m5; >8 (9)	5	5	5	5	**7**	5	5
Ch13	Smooth chaetae on tibiotarsi	not or 1 on Tt III (0), double file (1)	0	0	0	1	**0**	**0**	**0**
Ch14	Unguis internal teeth	1(1), 2(2), 3(3), 4(4)	4	**3**	4	3	**4**	**4**	**4**
Firstpair	First pair at % of Claw		46	**37**	42	56	50	50	**45**
Firstodd	First unpaired at % of Claw		71	69	71	72	**85**	76	70
Ch15	Unguis dorsal tooth	absent=0, basal =1, internal teeth level = 2 intermediate = 3	3	**1**	3	1	1	1	1
Ch16	Unguis internal edge	without ciliation (0), with ciliation (1)	0	0	0	0	0	0	0
Ch17	External unguiculus	smooth (0), serrate (1)	0	0	0	0	0	0	1
Ch18	A1 Abd. II	a2-a3	2	2	2	2	2	2	2
Ch19	A2 Abd. II	m3 series	4	4	6	4	4	4	4
Ch20	A3 Abd. III	a1	1	**0**	0	1	1	1	**0**
Ch21	A4 Abd. III	above m2	2	2	1	1	**2**	1	1
Ch22	A5 Abd. III	m3-m4 series	1	1	1	1	1	1	1
Ch23	A6 Abd. IV	a1-a5 (A1-E1a); >8 (9)	0	0	1	0	0	0	0
Ch24	A7 unpair seta	ma0 (A03)	0	0	0	0	0	0	0
Ch25	A7 Abd. IV	ma1-ma4 (A2-E1); >9 (10)	7(8)	8	15(18)	13	**16-20**	**9**	11-12
Ch26	A8 unpair seta	m0 (A04)	0	0	0	0	0	0	0
Ch27	A8 Abd. IV	m1-m3 (A4p-C4); >5 (6)	2	**0**	2	2	**0**	**0**	**0**
Ch28	A9 unpair seta	mp0 (A05)	0	0	0	0	0	0	0
Ch29	A9 Abd. IV	mp1-mp3 (A5-B5); >5 (6)	3	**2**	2(3)	3	**2**	3	**0**
Ch30	A10 Abd. IV	p1a-p3 (A6i-B6); >5 (6)	3	**4**	4(5)	5	**7**	**2**	**4**
Ch31	A11 Abd. IV	T1(ma4e) as thrichobotrium	0	0	0	0	0	0	0
Ch32	A12 Abd. IV	T2(m4) as thrichobotrium	1	**0**	1	1	**0**	**0**	**0**
Ch33	A13 Abd. IV	T4(mp4) as thrichobotrium	1	1	1	1	1	1	1
Ch34	A14 Abd. IV	T6 (p4) as thrichobotrium	0	**1**	0	0	**1**	**1**	**1**
Ch35	Ratio Abd.IV/Abd.III	2 < R < 4 (1), R > 4 (2)	2	2	2	2	2	2	2
Fur	Manubrium and dens length		1020	**1500**	1660	1390	**1696**	**920**	1460
Ch36	Manubrial plate	chaetae number; >10 (11)	11	**7**	10	11	-	-	8
Ch37	Manubrial plate	pseudopores 1-3	3	3	3	3	-	-	3
Ch38	Mucro	sub-apical tooth without (0), normal (1), big (2), small (3)	2	2	2	2	2	2	2
Ch39	Mucro	basal spine absent (0), present normal (1), present big (2)	1	1	1	1	1	1	1
Ch40	Eyes	number	8	8	8	8	8	8	8
Ch41	Eyes	lower-case if	EF>gh	EF>gh	EF>gh	EF>gh	EF>gh	EF>gh	EF>gh
Ch42	unguiculus	tooth: present (1), absent (0)	0	0	0	0	0	0	0
Ch43	tenent hair	clavate (1), acuminate (2)	1	1	1	1	1	1	1
Ch44	Manubrium smooth chaetae	absent (0), present (1)	0	0	0	0	0	0	0
Ch45	labial chaetae	absent (0), smooth micro (1), smooth macro (2), ciliated micro (3), ciliated Macro (4)	**-**44333	**044444**	-	044333	-	**444334**	**044344**
Ch45	labial chaetae (letter)		**-**MRell	-MRELL	-	-MRell	-	MMRelL	-MReLL
Ch46	scale-like chaetae	absent (0), present (1)	0	0	0	0	0	0	0
Ch47	dens with spines	absent (0), present (1)	1	1	1	1	1	1	1
Ch48	dens with spines	Number)	20-23	**42**	28	27-40	36-38	**20**	33-44
		Differential characters		**16**			**14**	**14**	**12**
		B to A and E, F G to D	**A**	**B**	C	**D**	**E**	**F**	**G**

TABLE 3. Chaetotaxy of 8 Japanese species of *Homidia*. In bold exclusive and differential characters among the species

	H1	H2	H3	H4	H5	T1	T2	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A1	A2	A3	dens spines number
H. chrysothrix	3	**2**	0	3	0	**2**	5	2	3	0	2	**2**	0	0	**5**	0	0	0	2	2	30
H. munda	3	1	0	3	2(1m)	4	**7**	2	4	1	2	1	0	0	16(20)	0	0	0	2	**7**	36-38
H. rossannae n. sp.	3	1	0	3	3	4	5	2	4	1	2	1	0	0	7(8)	0	2	0	3	3	20-25
H. sauteri	3	1	0	3	1b	4	**4**	2	3	1	2	1	0	0	8	0	0	0	3	3	20-30
H. socia	**5**	1	0	3	1b	4	5	2	4	0	**3**	0	1	0	7	0	0	0	3	2	14-30
H. sotoi n. sp.	3	1	0	3	3(2m)	**3**	5	2	**6**	0	1	1	1	0	15(18)	0	2	0	2(3)	4(5)	28
H. subcingula	3	1	0	3	0	4	5	2	4	0	1	1	0	0	**6**	0	0	0	3	2	14-19
H. yoshiii n. sp	3	1	0	3	1b	**5**	5	2	4	1	1	1	0	0	**13**	0	2	0	3	5	27-40

Table 4. Comparative table with number of chaetotaxy differences among the species of known chaetotaxy.

	H. chrysothrix	*H. munda*	*H. rossannae*	*H. sauteri*	*H. socia*	*H. sotoi*	*H. subcingula*	*H. yoshiii*
H. chrysothrix	**0**							
H. munda	**9**	**0**						
***H. rossannae* n. sp.**	**8**	**7**	**0**					
H. sauteri	**8**	**7**	**4**	**0**				
H. socia	**10**	**11**	**7**	**8**	**0**			
***H. sotoi* n. sp.**	**10**	**10**	**8**	**10**	**9**	**0**		
H. subcingula	**8**	**8**	**7**	**8**	**6**	**8**	**0**	
***H. yoshiii* n. sp.**	**11**	**8**	**5**	**6**	**9**	**6**	**7**	**0**